

## The Effects of Counting Blessings on Subjective Well-Being: A Gratitude Intervention in a Spanish Sample

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This study examined a gratitude intervention repeating Emmons and McCullough study (2003) in a Spanish sample. Participants were randomly assigned to one of three conditions (gratitude, hassles and any event) and kept daily records during 2 weeks of gratitude, affect, quality of relationships, physical and subjective well-being. We added design features to assess the intervention long-term impact (follow-up measures), and to improve the design control (pre-treatment measures). Following the cited authors' analysis, i.e., comparing groups only in the post-test, we replicated their results, finding differences in positive affect and gratitude between the gratitude condition and the hassles condition. However, when including both the pre and the follow-up measures in the analysis, results were replicated only partially, as the difference in gratitude disappeared. Moreover, the difference in positive affect between groups in the post-test seemed to be influenced mainly by a decrease in positive affect in the hassles group. Post-test differences between groups in positive affect disappeared in the follow-up. Gratitude interventions may have an effect on well-being, but we consider other methods to promote gratitude besides gratitude journals should be tested.

*Keywords:* gratitude, positive emotions, subjective well-being, positive interventions, positive psychology.

Este estudio examina una intervención en gratitud repitiendo el estudio de Emmons y McCullough (2003) en una muestra española. Los participantes fueron asignados de manera aleatoria a una de tres posibles condiciones (gratitud, escollos y cualquier suceso) y evaluaron diariamente durante dos semanas la gratitud, el afecto, la calidad de las relaciones, el bienestar físico y el bienestar subjetivo. Añadimos nuevos aspectos al diseño para evaluar el impacto de la intervención a largo plazo (medidas de seguimiento) y para mejorar el control (medidas pretest). Al hacer los mismos análisis que los autores previamente citados, es decir, al comparar los grupos sólo en el posttest, replicamos sus resultados, ya que encontramos diferencias en afecto positivo y en gratitud entre el grupo de gratitud y el grupo de los escollos. Sin embargo, cuando incluimos las medidas pretest y las de seguimiento en el análisis, replicamos los resultados sólo de manera parcial, ya que la diferencia en gratitud desapareció. Además, la diferencia en afecto positivo entre los grupos en el posttest parecía estar influida principalmente por un descenso en afecto positivo en el grupo de escollos. Las diferencias entre los grupos en afecto positivo en el posttest desaparecieron en el seguimiento. Las intervenciones basadas en la gratitud pueden tener un efecto sobre el bienestar, pero consideramos que se deberían investigar otros métodos aparte de los diarios de gratitud. *Palabras clave:* gratitud, emociones positivas, bienestar subjetivo, intervenciones positivas, psicología positiva.

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The authors gratefully acknowledge the positive comments and suggestions of Chris Peterson, John Pellitteri, Salvatore R. Maddi, and our colleagues Marisa Sánchez Bernardos, Carmelo Vázquez and Gonzalo Hervás.

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Since the uprising of positive psychology in 1998, an increasing number of studies evaluating interventions to promote well-being has emerged, of which those interventions based on gratitude have received especial attention. Nonetheless, the efficacy of these interventions needs to be investigated more exhaustively.

### *What is gratitude?*

In the recent classification of Peterson and Seligman (2004), gratitude is considered a character strength belonging to the so called “transcendental virtues” with important benefits for both the individual and the society, as previous thinkers such as Cicero or Adam Smith already noticed. In this classification, Emmons (2004) defines gratitude as “a sense of thankfulness and joy in response to receiving a gift, whether the gift be a tangible benefit from a specific other or a moment of peaceful bliss evoked by natural beauty” (p.554), i. e., an other-directed pleasant feeling about a benefit received, where the benefactor might be persons or non-human intentional agents. Besides being characterized as a moral virtue and as an emotion, also gratitude has been defined as an attitude, a habit, a personality trait and a coping response (Emmons & McCullough, 2003).

### *What are the psychological mechanisms underlying the relation between gratitude and well-being?*

The psychological mechanisms responsible for the beneficial effects of gratitude can be explained by the Broaden-and-Build Theory (Fredrickson, 2001), which claims that positive emotions broaden the repertoires of thought-action momentarily and build enduring personal resources. According to Fredrickson (2004), gratitude could broaden by inspiring creative reciprocity, and build by constructing psychological, social and spiritual resources, and this could lead to an increase in well-being.

Watkins (2004) also proposes a series of mechanisms to explain how gratitude may influence subjective well-being. First, he suggests that perceiving positive events as “gifts” might intensify well-being. Second, gratitude may counteract the adaptation to satisfaction that usually occurs as a human normal response (Frijda, 1988). Third, the practice of gratitude may work as a coping mechanism in situations of adversity by providing a helpful perspective on life that assists in mood repair following a stressful event. Fourth, gratitude may increase the accessibility and recollection of pleasant life events. Fifth, gratitude may increase the actual number of benefits in a person’s life, in particular, social benefits. Finally, Watkins (2004) proposed that gratitude may prevent depressive episodes, by many of these suggested mechanisms.

### *Gratitude interventions*

Some previous studies have tested the relationship between gratitude and well-being (e. g., Emmons & McCullough, 2003; Froh, Sefick, & Emmons, 2008; Froh, Kashdan, Ozimkowski, & Miller, 2009; Lyubomirsky, Sheldon, & Schkade, 2005; Seligman, Steen, Park, & Peterson, 2005; Watkins, Grimm, & Kolts, 2004; Watkins, Woodward, Stone, & Kolts, 2003). For example, Watkins et al. (2003) assigned participants to one of four conditions, i.e., three gratitude conditions (to think about someone for whom they were grateful, to write about someone for whom they were grateful, and to write a letter of gratitude to someone for whom they felt grateful) and one control condition (to write about the layout of their living rooms). Students in the grateful conditions reliably showed a greater increase in positive affect. That same year, Emmons and McCullough (2003) carried out three experimental studies. In study 1, students were randomly assigned to one of three conditions. Participants wrote either five things they were grateful for (gratitude condition), five hassles (hassles condition) or five events that affected them (life events condition) in the last week. Participants completed these exercise once a week during 10 weeks, along with a variety of measures of mood, coping behavior, physical symptoms, and overall life appraisals. Students in the gratitude condition reported being more grateful than those in the hassles condition. Relative to the hassles and life events conditions, the gratitude group felt better about their life as a whole, was more optimistic, and reported fewer physical complaints and more time exercising. In study 2, Emmons and McCullough diaries were kept on a daily basis over a two-week period. The life events group was replaced by a downward social comparison group where participants were encouraged to think about ways in which they thought they were better off than others. Participants were randomly assigned to one of the three conditions. The gratitude condition showed more positive affect in comparison to the hassles group but no changes in negative affectivity. A mediational analysis demonstrated that gratitude completely mediated the effect of the intervention in positive affect. Nonetheless, the health benefits from the first study were not replicated. In study 3, three weeks long, adults with neuromuscular diseases were randomly assigned either to a gratitude condition or to a control condition in which the participants simply filled out daily experience rating forms. The gratitude group showed significantly more positive affect and satisfaction with life, supported also by the reports of significant others, and less negative affect than the control group. In another recent study, Lyubomirsky et al. (2005) carried out a 6-week intervention where participants reflected on things for which they were grateful. Those participants who did this reflection once per week increased their well-being in comparison to the controls. Likewise, Seligman et al. (2005) carried out a

gratitude-based intervention that consisted on writing and then delivering in person a letter of gratitude to someone who had been nice to the participant but had not been thanked properly. Results showed an increase in happiness and a decrease in depressive symptoms for one month but also a return to their baseline level at the three months.

### *Goals of the present study*

The studies mentioned above suggest that gratitude have a causal relation with subjective well-being. In fact, Emmons and McCullough (2003) demonstrated that gratitude mediated the effect of the intervention on positive affect. Their study is certainly a key investigation in gratitude research, and probably the most cited one within this growing field. However, as far as we know, nobody has replicated this study in a Spanish sample. We do not know if the effects of gratitude interventions can be generalized to other cultures different from the North American one. The North American culture may consider gratitude a central cultural value, as may be supported, for instance, by the existence of the Thanksgiving Day, something that is not celebrated in Spain. In fact, there is only one adjective in the Spanish language to refer to the grateful feeling (*agradecido*), in contrast to the different nuances present in the English language (e.g., *grateful*, *thankful*, *appreciative*). This fact may be reflecting differences in the degree of importance that these two cultures give to gratitude. Moreover, Park, Peterson and Seligman (2006) compared the character strengths prevalence in fifty-four nations using the VIA-IS questionnaire. While in the American sample gratitude occupied the fourth position, in the Spanish sample it was the ninth.

Besides these cultural aspects, we think that Emmons and McCullough study (2003) leaves some important questions unanswered: Is the difference in gratitude and positive affect between the gratitude and the hassles groups after the intervention due to an improvement of the gratitude group? Or is it due to a decrease in the hassles groups? Recently, Froh, et al. (2009) have reported that nearly half of the gratitude interventions they reviewed showed benefits in comparison with a hassles condition. Another question raised in the present study is how long the differences between the gratitude group and the comparison conditions last. The absence of a follow-up measure to assess the long-term impact of the intervention is a difficulty in Emmons and McCullough's study given the observation that people's long term levels of subjective well-being tend to be relatively stable (Diener & Diener, 1996). Froh, Sefick, and Emmons (2008) have also included a 3-week follow-up in a recent counting-blessings study with early-adolescents. The gratitude condition reported greater gratitude compared to the hassles group in the post-test and follow-up. The gratitude and control condition reported significantly less negative affect compared to the

hassles group only at post-test. Also, the gratitude group indicated greater satisfaction with their school experience when compared to both the hassles and control group in the post-test and follow-up. However, they did not find any differences in positive affect, one of the main dependent variables, nor in physical health experiences at any moment. Because of this lack of consistency in the results in counting-blessings investigations, more replication studies are necessary. Also, there is a need of these replication studies in cross-cultural samples. Finally, although the assignment of the participants to the groups was random, was the homogeneity of the groups checked?

In an attempt to answer these questions we repeated the 2-week intervention conducted by Emmons and McCullough (2003) with a sample of Spanish students, with the addition of some features to improve the study design. As far as we know, it is the first time a counting blessings intervention is evaluated in a non-American sample. We included pre-test and follow-up measures, methodological improvements that we think are crucial to answer the questions raised out in the previous paragraph. These measures altogether let us track the evolution of the effects of the intervention, in the 3 different conditions, from its beginning to 15 days later. Moreover, the pre-test measures let us check the homogeneity of the 3 experimental conditions before the intervention in all the assessed variables, what involves a better control added to the random assignment. We used the any events condition (study 1, Emmons and McCullough, 2003) instead of the downward social comparison (study 2, Emmons and McCullough, 2003) because according to the authors it was a suitable control group. We also included, as a dependent variable, an indicator of the quality of interpersonal relationships that includes the perception of positive and beneficial acts from others and the exhibition of empathic and supporting behaviors toward them. As many empirical studies have revealed, relationships with others is a central aspect of well-being, and gratitude toward others may be an important emotional tie that strengthen these relationships, as it has been suggested (Algoe, Haidt, & Gable, 2008; Wood, Maltby, Gillett, Linley, & Joseph, 2008). In addition, we included a measure of global subjective well-being, sensitivity to others' needs and gratitude of the participants evaluated by a significant person in the follow-up, according to the importance of including non-self-report measures in research (Costa & McCrae, 1992; Diener, Suh, Lucas, & Smith, 1999).

According to Emmons and McCullough (2003) results, we expect to replicate the differences in both positive affect and gratitude between the gratitude and the hassles conditions after the intervention. We expect this effect of the intervention on positive affect to be completely mediated by gratitude. We also expect to replicate the lack of effect in the variables related to physical well-being. Regarding the long term effects, we suspect they may be ephemeral due

to the set-point theory of subjective well-being previously mentioned. In relation to the perception of the quality of the relationships, we expect that individuals in the gratitude condition exhibit a better quality than individuals in the hassles condition. Finally, we also expect the hypothesized benefits of the gratitude condition to be obvious to other people as well in the follow-up.

## Method

### Participants

The sample consisted initially of 159 Spanish undergraduate psychology students (142 women, 16 men) at the Universidad Complutense de Madrid. They participated voluntarily to obtain partial course credits and were randomly assigned to one of three experimental conditions. This sample was reduced by 54 participants due to incomplete data, leaving a total of 105 participants (95 women, 10 men) distributed in the following way: 41 in the gratitude condition, 34 in the any event condition and 30 in the hassles condition. The average age was 20.70 years ( $SD = 1.48$ ). We were interested in including in the analysis only those participants who had filled out all the measures at the three moments of measurement and that had done the diary everyday to keep a constant sample size and to test the real effects of the intervention. We did not impute missing values because it would affect the experimental variables. The maintenance in the analysis of only those participants who had followed the procedure properly was the best way to assess the real effects of the experimental manipulation. In order to test if this attrition would affect the results, we repeated the analyses including also those participants who had missed some measurement time or who had skipped the diary some days. The results did not change, so we decided to exclude them from the final analysis and keep only those participants who had answered the questionnaires at all times and who had done the diary daily.

We tested possible differences between the participants that remained in the study and those that were excluded. They did not differ statistically in most of the variables assessed, including the most relevant ones, i.e., gratitude and positive affect. There was not either a differential drop in the three experimental conditions. Nonetheless, we found that those who remained in the study scored higher in depth of the sleep and in the two global appraisals of subjective well-being, and lower in number of pain relievers. Regarding the final sample, there were differences in concurrent global subjective well-being before the intervention among conditions,  $F(2, 100) = 3.70, p = .028$ . The Bonferroni test ( $p = .041$ ) showed that the hassles group ( $M = 1.70$ ) scored higher than the gratitude group ( $M = .97$ ). We controlled for this variable in the subsequent analysis.

### Design

The study used an experimental prospective design with *Condition* and *Time* as the independent variables. Condition has three levels which correspond to the experimental conditions: (a) Gratitude (aspects of the daily experience for those one may feel grateful), (b) Hassles (daily hassles the participant may have faced), and (c) Any event (events of one's own choice which have impressed the participant during the day, either positive or negative). Time is a repeated measures variable with three levels corresponding to the measure times: (a) Pre-test (before the intervention), (b) Post-test (right after the intervention; it includes daily measures taken during the two-week intervention that were added up and averaged), and (c) Follow-up (two weeks after the intervention).

### Variables and measurement instruments

The following dependent variables were assessed repeating Emmons and McCullough's research (2003) (for better descriptions of the items in English refer to the original article. For a copy of the Spanish reports used in this study, please, contact the first author):

- a) *State gratitude*. We added scores in three specific affects related to gratitude (*grateful, thankful* and *appreciative*; in Spanish *agradecido, con gratitud y con agradecimiento*) rated in a 5-point Likert scale (Cronbach alpha  $\alpha = .95$  in pre-test,  $\alpha = .95$  in post-test, and,  $\alpha = .92$  in follow-up).
- b) *Positive and negative affect*. We extracted positive and negative affect factors from the specific affect states used by the cited authors, rated in a 5-point Likert scale: *interested, distressed, excited, alert, irritable, sad, stressed, ashamed, happy, tired, upset, strong, nervous, guilty, joyful, determined, calm, attentive, forgiving, hostile, energetic, hopeful, enthusiastic, active, afraid, proud, and angry* (Cronbach alpha for positive affect  $\alpha = .90$  in pre-test,  $\alpha = .95$  in post-test, and  $\alpha = .90$  in follow-up; for negative affect,  $\alpha = .87$  in pre-test,  $\alpha = .94$  in post-test, and  $\alpha = .87$  in follow-up).
- c) *Global appraisals of subjective well-being*. We assessed both concurrent and prospective subjective well-being in a 7-point Likert scale. Participants were asked to rate how they felt about their life as a whole that day (concurrent well-being), on a  $-3$  (*terrible*) to 3 (*delighted*) scale. A second question asked participants to rate their expectations for the upcoming day (prospective well-being), also on a  $-3$  (*pessimistic*) to 3 scale (*optimistic*).
- d) *Physical symptoms*. We used the same list of negative physical symptoms used by Emmons and McCullough (2003), according to them a good index of perceived health status. We asked participants if

they had experienced a series of symptoms during the day. The result was calculated adding up the number of symptoms experienced.

- e) *Pain relievers*. Participants indicated the number of pain relievers consumed that day.
- f) *Sleep quality*. Participants answered a series of questions regarding sleep quality. They indicated the number of hours of sleep. Also, they answered if it was difficult for them to fall asleep the night before (*yes/no*). They also rated how refreshed they felt after sleep using a 4-point Likert scale (1 = *not rested at all*, 4 = *extremely*). Beside these questions used by Emmons and McCullough (2003), we also asked the depth of the sleep using a 4-point Likert scale (1 = *very shallow*, 4 = *very deep*).

In addition to these variables used by Emmons and McCullough (2003) (listed above from *a* to *f*), we also added the following:

- g) *Quality of the relationship with a significant other*. To assess the quality of the relationship with a significant person, we created a measure with four items to be answered in a four-point Likert scale (1 = *not at all*, 4 = *a great deal*): (a) To what extent can you contribute to the well-being of that person?, (b) To what extent does that person contribute to your well-being?, (c) To what extent do you think you can count on this person to help you with the problems you have?, and (d) To what extent can this person count on you to help her/him with the problems that she/he has? We added scores to create a single measure (Cronbach alpha  $\alpha = .78$  in pre-test,  $\alpha = .84$  in post-test,  $\alpha = .78$  in follow-up).
- h) *Sensitivity to others' needs*. Subjects rated the extent to which they considered themselves to be sensitive to other people's needs in a four-point Likert scale (1 = *not at all*, 4 = *a great deal*).
- i) *Trait gratitude*. We used the Spanish translation of the Gratitude Questionnaire (GQ-6; McCullough, Emmons, & Tsang, 2002), that can be found in the Spanish version of the Authentic Happiness website (<http://www.authentic happiness.sas.upenn.edu/default.aspx>). In our study, the Cronbach alpha was  $\alpha = .78$  in pre-test,  $\alpha = .78$  in post-test, and  $\alpha = .80$  in follow-up.
- j) To find out if the potential changes after the intervention were perceived by significant others, these rated the participants' global subjective well-being, gratitude and sensitivity to others in the follow-up. The *global subjective well-being* was assessed by Andrews and Whitey's scale (1976). The significant person rated how the participant felt about his/her life in general in terms of what happened to him/her lately and the expectations he/she had for the immediate future. Regarding the other variables, the significant person

rated how *grateful* and *sensitive to the others' needs* the participant was on a four-point Likert scale (1 = *not at all*, and 4 = *a great deal*). The participants in the study also completed the Andrews and Whitey's scale of global subjective well-being, and the question related to their sensitivity to others' needs, in the same 4-point Likert scale, at the three moments of measurement. The reason why we assessed external observers only in the follow-up is a practical one. We anticipated it was going to be difficult to keep external observers answering questions too many times, so we decided to focus on the follow-up, as we were especially interested on the effects of the intervention in the long run. Also, if we expect changes in the participants to be perceived by others, these external observers would need some time after the intervention to notice them.

### Procedure

Participants were told that they were going to take part in a study regarding mood. Then, they were asked to keep their tasks confidential until the end of the study, when they would receive a complete feedback about it. They were given a packet with 15 daily reports, which differed only in the kind of journal they had to write, according to their condition. These packets were randomly distributed in class. One day before the intervention, participants filled out the baseline measures. Then, they carried out the diary for 14 days and filled out daily measures of gratitude state, positive and negative affect, physical well-being, sleep quality and concurrent and prospective appraisals of subjective well-being. At the end of the intervention all the daily measures were taken again, together with measures of gratitude trait, quality of the relationship with one significant person, and sensitivity to the others' needs. Fifteen days after, they filled out measures of all the variables again, and the significant persons estimated the gratitude, well-being and sensitivity to others of the participants. The significant person was chosen by the participant as somebody with whom the participant had a close relationship (e.g., a family member or a close friend). Participants answered all questions individually and their reports were handed in a closed envelope to ensure confidentiality.

The instructions given to the participants were based on Emmons and McCullough's (2003) study with some small modifications to make them a bit more specific, in order to enhance the expected effects of each task, such as an increase in the perceived quality of relationships in the gratitude condition.

In the gratitude condition, the instructions were as follows:

*"In life, there are many people who help us reach our goals, or who just make our lives easier with small details. If we try to put ourselves in their shoes, appreciate their efforts,*

and notice the voluntary nature of their acts, we have a good reason to feel grateful. Please, think of today and write five things in your life for which you could feel grateful.”

The instructions for the hassles condition were as follows:

“In life, we find many hassles that stand in our way in different fields (e.g., in personal relationships, at work, at university, at home, in financial stuff, in health). We feel irritated and even can feel these hassles as a personal offence. Please, think of today and write five small hassles you had to face.”

Regarding the any event condition, the instructions were the following:

“In life, we find many events that may affect us in a different degree, in a positive or negative way. Please, think of today and write five events that have affected you in any way.”

In order to control the effect of the experimental demand, participants wrote the diaries after completing the measures of the dependent variables. They were instructed to answer the quality sleep measures right after waking up and the remaining variables before going to sleep. Answer sheets were handed in daily at the university. Students kept their confidentiality using a code instead of their real name.

## Results

### Data Reduction

We conducted the same data reduction that Emmons and McCullough did to obtain the gratitude state, and the positive and negative affect variables. We aggregated participant's scores on the adjectives related to gratitude (grateful, thankful, and appreciative) and created a single measure of daily gratitude state. Then we aggregated the 14 daily gratitude state measures to form a single 14 days measure of gratitude state. Similar single 14 days composites were created for each of the discrete affects. These single 14 days composites correspond to the post-test of the present study.

To create both the positive and negative affect variables, we carried out a maximum likelihood factor analysis with oblimin rotation ( $\Delta = \mathbf{0}$ ) in each of the three experimental times with the discrete affect variables (positive and negative affects) and extracted two factors. The Kaiser-Meyer-Olkin measures of sampling adequacy tests were .855 in the pre-test, .903 in the post-test and .815 in the follow-up. Given that all three values were above .6, it was satisfactory to proceed a factor analysis. Also, the Bartlett's test of sphericity showed significance levels  $< .001$ , showing a strong relationship among variables and supporting the factor analysis for the data at the three moments of measurement. These two factors accounted for 41.87 % of the variance in pre-test, 58.83 % in post-test, and 39.05 % in follow-up. After examining which discrete affects composed each factor we concluded that there was one factor of positive affect and another factor of negative affect. In the positive affect

factor, basically all the positive discrete affects loaded greater than .40 and the negative discrete factors loaded no greater than .40. In the negative affect factor, virtually all the negative discrete affects loaded greater than .40 and all the positive discrete affects loaded no greater than .40. The correlations between the factors were  $r = -.36$  in pre-test,  $r = -.35$  in post-test and  $r = -.33$  in follow-up.

### Analysis 1:

#### Repetition of Emmons and McCullough's study (2003) comparing groups only in the post-test

We carried out a one-way ANOVA of all dependant variables only after the intervention, the only measure taken by Emmons and McCullough, in order to replicate their results exactly as they did. The independent variable was Condition, which had three levels (Gratitude, Hassles and Any events). All the required assumptions for the ANOVA were fulfilled. The established significance level was  $\alpha = .05$ . There were statistically significant effects in state gratitude and positive affect, and a trend in the quality of the relationship with the significant person.

*State gratitude.* There was an effect for condition,  $F(2, 102) = 3.60$ ,  $p = .031$ ,  $\eta_p^2 = .066$ ,  $1-\beta = .655$ . A post hoc *Bonferroni's* test showed that the gratitude condition scored significantly higher in state gratitude than the hassles condition ( $p = .035$ ) after the intervention. Neither the gratitude group nor the hassles group differed significantly on state gratitude from the any event group. Effects sizes (Cohen's  $d$ ) were .61 for the mean difference between the gratitude and hassles groups, .35 for the mean difference between the gratitude and any event groups, and .29 for the mean difference between the any event and the hassles group. Similar results were found in the research performed by Emmons and McCullough.

*Positive affect.* There was also a main effect for condition,  $F(2, 102) = 4.44$ ,  $p = .014$ ,  $\eta_p^2 = .08$ ;  $1-\beta = .752$ . A post hoc *Bonferroni's* test showed that the gratitude group scored significantly higher than the hassles group in positive affect after the intervention ( $p = .011$ ). The any event group remained in an intermediate level, not differing significantly from the other two groups. Effect sizes (Cohen's  $d$ ) were .69 for the mean difference between the gratitude and hassles groups, .32 for the mean difference between the gratitude and any event groups, and .42 for the mean difference between the hassles and any event groups. Once again, this result was also found in Emmons and McCullough's study.

Also, although not statistically significant, we found a trend in *Quality of the relationship with the significant person* ( $p = .072$ ), where the gratitude group scored higher than the other two groups. No other differences were found.

*Gratitude as a mediator of the interventions' effects on positive affect.* Following Emmons and McCullough steps,

we conducted a mediational analysis as described by Baron and Kenny (1986) to test if the gratitude intervention's effects on gratitude state were responsible for the effects of the intervention on positive affect. Given that only the gratitude and the hassles groups differed significantly in these variables, only these two groups were included in the analysis. The gratitude condition was coded as 1 and the hassles condition was coded as 0.

The correlation of the intervention effect (i.e. gratitude vs. hassles) with state gratitude was  $r(N = 71) = .29, p = .013$ . The correlation of the intervention with positive affect was  $r(N = 71) = .33, p = .005$ . When positive affect was regressed on the intervention effect and gratitude at the same time, gratitude had a significant unique association with positive affect ( $\beta = .86, p < .001$ ), but the intervention did not ( $\beta = .20, p = .187$ ). The *Sobel's* test showed that the indirect effect was significant (*test statistic* = 2.43,  $p = .014$ ). Conversely, when gratitude was regressed on the intervention effect and positive affect at the same time, positive affect had a significant unique association with gratitude ( $\beta = .73, p < .001$ ), but the intervention effect did not ( $\beta = .05, p = .693$ ). The *Sobel's* test showed that the indirect effect was significant (*test statistic* = 2.77,  $p = .005$ ). Thus, it seems that both variables, gratitude state and positive affect, were completely mediating the effects of the intervention on the other variable, i.e., on positive affect and on gratitude state respectively. Thus, the mediational analysis performed by Emmons and McCullough (2003) was partially replicated in the present study, given that it seems that a third variable, that is unknown and related to both gratitude state and positive affect, would be the responsible for these results. Emmons and McCullough (2003) reported that only gratitude was completely mediating the effects of the intervention on positive affect.

#### Analysis 2:

##### Inclusion of the pre-test and follow-up measures in addition to the post-test

We repeated the previous analysis but including this time pre-test and follow-up measures, that were absent

in Emmons and McCullough's study. We conducted a MANOVA of two factors, one of independent measures and other of repeated measures, of all dependent variables. In this last analysis, the independent measures factor was Condition, with three levels (Gratitude, Hassles and Any events), and the related measures factor was Time, with three levels as well: pre-test, post-test and follow-up. All the required assumptions for the MANOVA were fulfilled most part of the time, and in those cases where sphericity was not satisfied, robust tests such as *Greenhouse-Geisser* or *Lower-bound* were used. All groups were homogeneous before the intervention in all the variables assessed, except in *global appraisal of concurrent subjective well-being*, so we controlled for this variable in the pre-test performing a MANCOVA. The established significance level was  $\alpha = .05$ . In this broader context, results changed slightly. There was only an effect on positive affect. The effect observed previously in gratitude state disappeared.

*State gratitude.* The multivariate test for the interaction was not significant,  $F(4, 204) = 2.237, p = .066, \eta_p^2 = .042, 1-\beta = .649$ . Contrary to the previous one-way ANOVA (analysis 1), there was not any statistically significant effect for the interaction Time X Condition in state gratitude,  $F(2, 102) = 1.508, p = .226, \eta_p^2 = .029, 1-\beta = .315$ , i.e., we did not find any statistically significant differences in the degree of state gratitude among the groups at any particular moment of measurement. Means and standard deviations are shown in Table 1.

*Positive affect.* The multivariate test for the interaction was significant,  $F(4, 204) = 3.292, p = .012, \eta_p^2 = .061, 1-\beta = .833$ . There was a statistically significant effect for the interaction Time X Condition,  $F(3.61, 184.15) = 2.76, p = .034, \eta_p^2 = .051, 1-\beta = .719$ . A post hoc *Bonferroni's* test ( $p = .011$ ) showed that the gratitude group scored higher in positive affect in the post-test in comparison with the hassles group. The any event group remained in an intermediate level after the intervention, not being significantly different from the other two groups (Figure 1). This result was consistent with the previous analysis; however, we could observe how this difference disappeared

Table 1

*Means and standard deviations of state gratitude in the three conditions at the three times of assessment*

	Pre-test		Post-test		Follow-up	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Gratitude ( <i>n</i> = 41)	2.959	1.174	3.074	.918	3.032	1.077
Hassles ( <i>n</i> = 30)	2.700	1.207	2.518	.902	2.988	1.037
Any event ( <i>n</i> = 34)	2.844	1.231	2.770	.780	3.137	.829

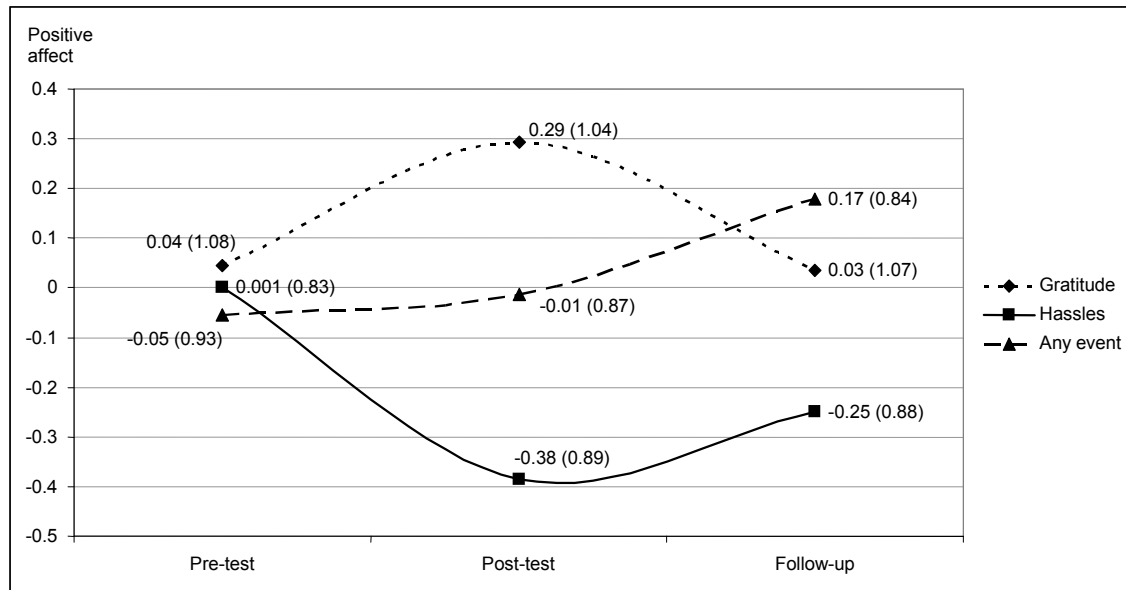


Figure 1. Mean scores and standard deviations (in brackets) of positive affect in the three conditions at the three times of assessment.

in the follow-up, 15 days after the intervention. Also, there were differences in the hassles group between its level of positive affect in the pre-test and the post-test exactly in the level of significance (*Bonferroni*:  $p = .05$ ). This decrease in positive affect seems to be influencing the significant difference found between the gratitude and the hassles groups after the intervention. There was not a significant increase in positive affect in the gratitude condition from the pre-test to the post-test.

We did not find any statistically significant difference between the groups in the self-report measures of the other variables assessed. Additionally, we examined if pre-test levels of gratitude, positive affect, concurrent and prospective well-being, and quality of the relationship with a significant person were moderating the effects of the intervention on positive affect in the post-test, but we did not find any effect.

### Analysis 3: Comparing groups from the significant person's perspective

An analysis of variance (ANOVA) of two factors, one of independent measures (Condition, with three levels: Gratitude, Hassles, and Any event) and another of repeated measures (Informant, with two levels: participant, when the participants in the study answered the questions, and significant person, when a significant person for the participant answered the questions) revealed a statistically significant effect for the interaction in global subjective well-being,  $F(2, 101) = 3.702$ ,  $p = .028$ ,  $\eta_p^2 = .068$ ,

$1-\beta = .668$ ). A post hoc *Bonferroni*'s test showed that from the point of view of the significant persons, individuals in the gratitude group felt better about their life in general than the individuals in the hassles group ( $p = .007$ ;  $d = .76$ ) in the follow-up. Also, there was a trend of the significant persons' estimation of the participant's global subjective well-being to be higher than the participant's own estimation of their global subjective well-being in the gratitude group ( $p = .050$ ). These results are shown in Figure 2.

We did not find any difference in the degree in which the significant persons thought the participants of different conditions were sensitive to the others' needs or grateful people.

### Discussion and conclusion

The present study replicated the effects of the gratitude intervention conducted by Emmons and McCullough (2003) in a Spanish sample of undergraduate psychology students when comparing only post-test scores: a difference in state gratitude and positive affect was found between the gratitude and the hassles groups after the intervention (analysis 1). However, the mediational analysis was only partially replicated, given that not only gratitude was completely mediating the effect of the intervention on positive affect but also positive affect seemed to be completely mediating the effect of the intervention on gratitude. Emmons and McCullough (2003) found that only gratitude mediated completely the effects of the intervention on positive affect, but not the other way round.



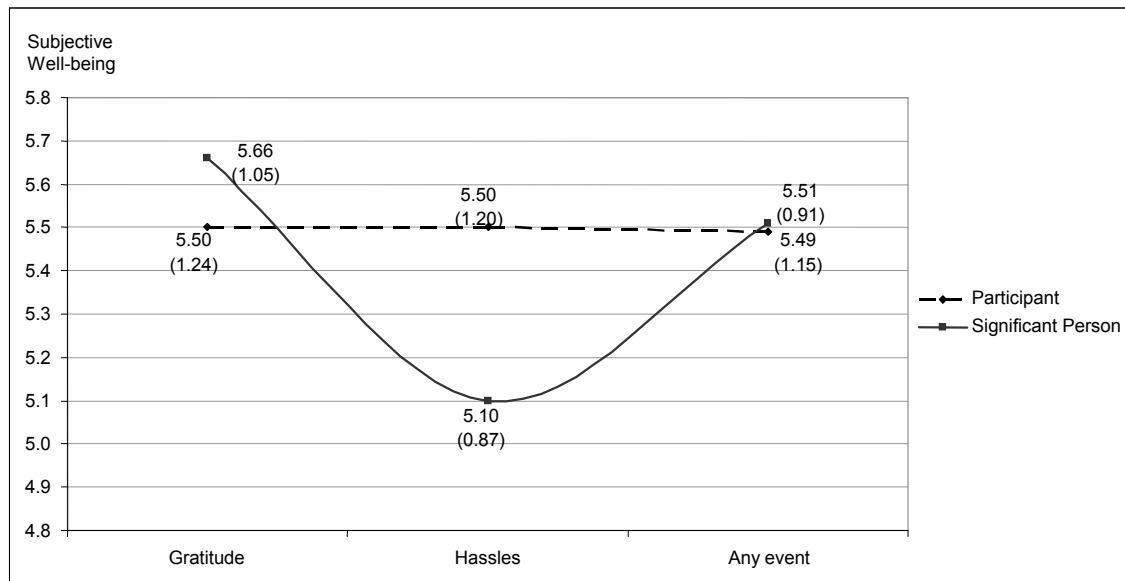


Figure 2. Mean scores and standard deviations (in brackets) of subjective well-being of participants evaluated with self-reports and by a significant person in the three conditions.

In an attempt to interpret this new finding, we think that the intervention may be influencing other factors which may be common to both gratitude and positive affect. In fact, Watkins (2004) has reflected on the possibility that gratitude may be an epiphenomenon of happiness, and also suggested that gratitude may influence happiness but also happiness may promote gratitude. Our results seem to support this bidirectional relation between positive affect and gratitude. When asking individuals to count their blessings we are encouraging them to think of the positive side of their reality what could raise either positive affect in general or gratitude in particular, or both simultaneously. In order to clarify this issue it would be necessary to test other variables as possible mediators on future gratitude interventions.

Besides the replication of the effects of the original intervention conducted by Emmons and McCullough (2003) (analysis 1), the inclusion of pre-test and follow-up measures in the design showed some different results and revealed important information (analysis 2). First, the observed decrease in positive affect in the hassles condition from the beginning to the end of the intervention may be the main responsible for the difference between the gratitude and hassles groups after the intervention. This is an important point to consider given that most part of gratitude interventions usually compare a gratitude condition with a hassles condition (Froh et al., 2009), and the differences between them are usually interpreted as if gratitude conditions would increase positive affect. Of course we do not know if this effect found in the hassles condition has happened as well in other gratitude interventions different

from the one presented here, but we think it is an aspect that should be considered in future gratitude research. Another interesting issue revealed in this analysis 2, i.e., when the analysis comparing conditions included pre-test and follow-up measures besides the post-test, is that the effect of the intervention on positive affect remained, but the effect on state gratitude disappeared. This lack of effect may be due to the power of the test ( $1-\beta = .655$ ), which was too small to capture the difference on state gratitude between the gratitude and hassles groups. However, it may be also suggesting that the effect of the intervention on positive affect is not exclusively caused by gratitude. Again, considering other potential mediators will be very useful in future studies.

The follow-up showed that the difference in positive affect between the gratitude condition and the hassles condition disappeared 15 days after the intervention. This result is not surprising and supports the fact that individual differences in the average level of the affective state are relatively stable over time (Diener & Diener, 1996). It remains to be seen, as gratitude research mounts, if this brief effect occurred in our study or if it is a general characteristic of gratitude interventions.

Regarding other variables besides positive affect and gratitude, the quality of the relationship with a significant person showed a trend in the expected direction, i.e., the gratitude group seemed to show a better perception of their relationships than the other two groups (analysis 1). However, this difference was not significant, it was just a trend. Probably, the perceived quality of the relationship with a significant person may need more time

to be changed significantly. Thus, we think it would be necessary to test again in the future the possible effect of gratitude interventions on the perception of the quality of relationships in longer measurement times and in larger samples to improve the power of the test.

No differences were found between the conditions in the variables related to physical well-being. This may have been due to the short duration of the intervention. However, it could also be the case that gratitude interventions do not have any effect on physical well-being. Only a few studies in the gratitude literature (Emmons & McCullough, 2003) suggest a relationship between gratitude and physical well-being, and their results are not solid.

According to the external observers (analysis 3), individuals in the gratitude group were perceived to have a higher subjective well-being than participants in the hassles group in the follow-up. This result is consistent with our hypothesis. However, this difference may have been caused for a decrease in well-being in the hassles group in comparison with the gratitude condition, given the fact that the difference in self-reported positive affect between both conditions seemed to be due to a decrease in the hassles condition. This result also supports the general recommendation in personality psychology to include external measures besides self-report (Costa & McCrae, 1992; Diener et al., 1999). According to the estimation of the external observer, there were no differences among the groups either in gratitude or in sensitivity to the others' needs, matching the self-report results in this case.

The current study is a contribution to the growing gratitude research, which has attracted the interest of the scientific community to a large extent, and that is still in an incipient stage. As far as we know, this is the first repetition of the intervention conducted by Emmons and McCullough in a non-American sample. Besides this novel aspect, the inclusion of the pre-test and follow-up measures improved the study control and provided information that enriches the gratitude interventions' literature. Although the effect sizes reported in the present study are smaller than the ones found in the original study, they are still medium-large, what is remarkable given the short duration of the intervention. Because this experiment has shown an ephemeral effect on positive affect, we suggest that counting blessings exercises may be used to boost positive affect in initial stages, or just as one of many components in more complex interventions including different exercises. In fact, Lyubomirsky, Sheldon, and Schkade (2005) already recommended to constantly engage in happiness-producing activities to keep happiness levels high.

Besides its strengths, the present study has also some limitations. One of them is the measure used to assess gratitude state. We tried to use a measure as similar as possible to the one used in Emmons and McCullough's study, but in Spanish we only have one adjective for "grateful", i.e., "agradecido". So we used expressions that reflected to

be grateful, but not the exact translation. The development of a better measure of gratitude state in Spanish is necessary. Another limitation is the use of the any event condition as a control group. Although Emmons and McCullough (2003) found it to be a suitable control group in their study, in our study it did not give the expected results. Participants in this condition wrote more about positive things than about negative or neutral ones, and this might have affected them in some positive way. Better control groups need to be used in future studies. Finally, we would like to point at possible directions for future research. Testing what other mediators may be influencing gratitude interventions besides gratitude is necessary. What personality characteristics may facilitate or inhibit gratitude interventions' effects? Would dispositionally grateful people benefit from this intervention? What about people high in positive affectivity trait? These proposals set up some future directions in the gratitude interventions research.

## References

- Algoe, S. B., Haidt, J., & Gable, S. L. (2008). Beyond reciprocity: gratitude and relationships in everyday life. *Emotion, 8*, 425-429.
- Andrews, F. M., & Whitney, S. B. (1976). *Social indicators of well-being. America's perception of life quality*. New York: Plenum Press.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Costa, P. T., & McCrae, R. R. (1992). Four ways factors are basic. *Personality and Individual Differences, 13*, 653-655.
- Diener, E., & Diener, C. (1996). Most people are happy. *Psychological Science, 7*, 181-185.
- Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. E. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin, 125*, 276-302.
- Emmons, R. A. (2004). Gratitude. In C. Peterson and M. E. P. Seligman (Eds.), *Character Strengths and Virtues. A handbook and classification*. (pp. 553-568). Washington D.C: APA & Oxford University Press.
- Emmons, R. A., & McCullough, M. E. (2003). Counting blessings versus burdens: An experimental investigation of gratitude and subjective well-being in daily life. *Journal of Personality and Social Psychology, 84*, 377-389.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology. The Broaden-and-Build Theory of positive emotions. *American Psychologist, 56*, 218-226.
- Fredrickson, B. L. (2004). Gratitude, like other positive emotions, broadens and builds. In R. A. Emmons, & M. E. McCullough (Eds.) *The Psychology of Gratitude*. (pp. 145-166). New York: Oxford University Press.
- Frijda, N. H. (1988). The Laws of Emotion. *American Psychologist, 43*, 349-358.

- Froh, J. J., Kashdan, T. B., Ozimkowski, K. M., & Miller, N. (2009). Who benefits the most from a gratitude intervention in children and adolescents? Examining positive affect as a moderator. *The Journal of Positive Psychology, 4*, 408-422.
- Froh, J. F., Sefick, W. J., & Emmons, R. A. (2008). Counting blessings in early adolescents: An experimental study of gratitude and subjective well-being. *Journal of School Psychology, 46*, 213-233.
- Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology, 9*, 111-131.
- McCullough, M. E., Emmons, R. A., & Tsang, J. (2002). The grateful disposition: A conceptual and empirical topography. *Journal of Personality and Social Psychology, 82*, 112-127.
- Park, N., Peterson, C., & Seligman, M. E. P. (2006). Character strengths in fifty-four nations and the fifty US states. *The Journal of Positive Psychology, 1*, 118-129.
- Peterson, C., & Seligman, M. E. P. (2004) (Eds.) *Character Strengths and Virtues. A handbook and classification*. Washington D.C.: APA & Oxford University Press.
- Seligman, M. E. P., Steen, T. A., Park, N., & Peterson, C. (2005). Positive Psychology Progress: Empirical Validation of Interventions. *American Psychologist, 60*, 410-421.
- Watkins, P. C. (2004). Gratitude and subjective well-being. In R. A. Emmons & M. E. McCullough (Eds.), *Psychology of Gratitude* (pp. 167-194). New York: Oxford University Press.
- Watkins, P. C., Grimm, D. L., & Kolts, R. (2004). Counting your blessings: Positive memories among grateful persons. *Current Psychology, 23*, 52-67.
- Watkins, P. C., Woodward, K., Stone, T., & Kolts, R. (2003). Gratitude and happiness: development of a measure of gratitude and relationships with subjective well-being. *Social Behavior and Personality: An International Journal, 31*(5), 431-451.
- Wood, A. M., Maltby, J., Gillett, R., Linley, P. A., & Joseph, S. (2008). The role of gratitude in the development of social support, stress, and depression: Two longitudinal studies. *Journal of Research in Personality, 42*, 854-871.

Received May 12, 2009

Revision received February 2, 2010

Accepted February 19, 2010